ABSTRACT

A method of forming metal oxide powders includes the steps of solid state mixing of at least one metal nitrate salt, such as $Fe(NO_3)_3$ or a combination of metal nitrate salts such as $Zn(NO_3)_3{,}6H_2O$ and $Ga(NO_3)_3$, xH_2O, and at least one reducing organic acid, such as tartaric or citric acid. The mixture is heated to form a metal oxide powder, such as alpha-iron oxide (α-Fe_2O_3) or a mixed metal powder such as zinc gallate phosphor ($ZnGa_2O_4$). A metal oxide precursor intermediate can be formed and then heated to form the metal oxide powder.